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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/687,747	10/20/2003	Hirota Murata	244166US2S CONT	9266

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EXAMINER

LIANG, REGINA

ART UNIT PAPER NUMBER

2629

DATE MAILED: 08/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/687,747	<b>Applicant(s)</b> MURATA ET AL.	
	<b>Examiner</b> Regina Liang	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,3-9 and 11-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3-9 and 11-13 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/9/06</u> . | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. This Office Action is responsive to amendment filed 6/23/06. Claims 1, 3-9, 11-13 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

3. Claims 1, 3, 4, 6, 7, 11, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumio et al (JP 2001-272926 hereinafter Kumio).

As to claim 1, 3, 4, 7, 11, Fig. 3 of Kumio discloses an image display apparatus (field emission display) comprising: a vacuum envelope having a first substrate (face plate 12) and a second substrate (rear plate 10) opposed to each other with a gap; a plate-shaped structure (grid 24) arranged between the first substrate and the second substrate and fixed to at least one of the first and second substrate; an image display surface formed on an inner surface of one of the first and second substrates (the luminescent phosphor 16 is formed on an inner surface of the face plate 12); and a plurality of electron emitting elements which are arranged on an inner surface of the other of the first and second substrates (the electron emission component 18 are arranged on an inner surface of the rear plate 10) and emit electrons toward the image display surface.

Kumio does not disclose the plate-shaped structure (grid 24) having a thermal expansion coefficient 1.02-1.2 or 1.07-1.15 times as high as that the rear plate. However, Kumio teaches the grid is formed from an iron-nickel based metal plate and is about 0.1

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mm thickness, and the rear plate is formed of a glass ([0023], [0029] of the English translation). Since Kumio uses the same materials for the grid and the rear plate as applicant's grid (plate-shaped structure) and the rear substrate, thus, it would have been obvious to one of ordinary skill in the art at the time the invention was made to recognize the grid and rear plate of Kumio having the thermal expansion coefficient as claimed so as to prevent damage to the base substrate during the heat treatment.

As to claim 6, Kumio does not disclose the grid has a thermal expansion characteristic such as an elongation rate thereof is higher than that of the base substrate at any temperature. However, since Kumio teaches the grid contains the same material as applicant's, thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to recognize that the grid of Kumio having the thermal expansion coefficient characteristic as claimed.

As to claim 12, Figs. 2, 3 of Kumio teaches the grid 24 is provided with a plurality of joints fixed to the rear substrate (10) through pedestals, individually.

4. Claims 5, 8, 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kumio and in view of Mitsuaki (JP 2000-100358).

As to claim 5, Figs. 2, 3 of Kumio teaches a plurality of support members (30a, 30b) arranged between the face plate and rear plate. Kumio does not explicitly disclose the support members support the face plate and rear plate against the atmospheric pressure. However, Mitsuaki teaches the support member for support the face plate and rear plate against the atmospheric pressure (lines 6-7 of [0017] of translation). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention

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was made to modify the support members of Kumio to have the feature as taught by Mitsuaki such that “a screen produce can be expanded, without the interior making the weight increase not much the flat-surface mold display used by the vacua” (last two lines in [0023] of Mitsuaki).

As to claim 8, Kumio as modified by Mitsuaki does not disclose the support members having a thermal expansion coefficient higher than of the rear substrate. However, Mitsuaki teaches the support members are formed of alloys ([0012]). Thus, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the support members of Kumio as modified by Mitsuaki to have a thermal expansion coefficient higher than of the rear substrate so as to prevent damage to the base substrate during the heat treatment.

As to claim 9, Kumio teaches the support members are fixed to the grid.

5. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kumio in view of Tsuburaya et al (US. PAT. NO. 6,407,500 hereinafter Tsuburaya).

Kumio does not disclose a power supply terminal provided on an outer surface of the rear substrate, and wherein the grid has electrical conductivity and is connected electrically to the power supply terminal through at least on the pedestals and a through hole in the rear substrate. However, Fig. 7 of Tsuburaya teaches the GT (grid) is electrically connected to a power supply terminal (Va, Vgk), Fig. 1a, 1b, 2, 5a of Tsuburaya teaches the power supply terminal (through lead 5) provided on an outer surface of the rear substrate (1), and the electrically connection is through at least on the pedestals and a through hole in the rear substrate. Thus, It would have been obvious to

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one having ordinary skill in the art at the time the invention was made to modify the display apparatus of Kumio to have a power supply terminal as taught by Tsuburaya thus resulting in stable electrical connection such that a high voltage can be effectively applied to the electrode connecting with high reliability, without the occurrence of self-discharging (col. 6, lines 36-37 and 53-55 of Tsuburaya).

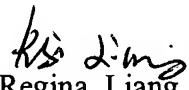
***Response to Arguments***

6. Applicant's arguments with respect to claims 1, 3-9, 11-13 have been considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Regina Liang whose telephone number is (571) 272-7693. The examiner can normally be reached on Monday-Friday from 8AM to 5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (571) 272-7691. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Regina Liang  
Primary Examiner  
Art Unit 2674

7/28/06